

Boston College Environmental Affairs Law Review

Volume 42 | Issue 2

Article 10

4-24-2015

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Joe Lance

Boston College Law School, bradley.lance@bc.edu

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Recommended Citation

Joe Lance, *Staged CERCLA Remediation vs. Biogeochemical Cycling: How the Seventh Circuit Compartmentalized the Environment in Frey v. EPA, and Why Polychlorinated Biphenyls Don't Care*, 42 B.C. Envtl. Aff. L. Rev. 577 (2015), <http://lawdigitalcommons.bc.edu/ealr/vol42/iss2/10>

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STAGED CERCLA REMEDIATION VS. BIOGEOCHEMICAL CYCLING: HOW THE SEVENTH CIRCUIT COMPARTMENTALIZED THE ENVIRONMENT IN *FREY v. EPA*, AND WHY POLYCHLORINATED BIPHENYLS DON'T CARE

JOE LANCE*

Abstract: For decades, toxic chemicals have leaked from disposed electronic equipment into the environment at several sites around Bloomington, Indiana. The contamination has resulted in a series of lawsuits concerning when citizens may bring legal claims in order to have input in the cleanup process. The Seventh Circuit, in *Frey v. U.S. Environmental Protection Agency*, held that section 113(h)(4) of the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA, bars review of the EPA's planned or pending stages of an environmental cleanup. The court held, however, that CERCLA allows review of completed stages of a cleanup as long as they are not directly related to the EPA's new remediation plans. This Comment argues that although the decision is a sensible legal compromise, it ignores the established scientific concept of biogeochemical cycling: matter is not static, it moves throughout the many compartments of Earth's surface. The Seventh Circuit's decision ignores this scientific truth and instead creates illusory distinctions between environmental compartments in order to satisfy a legal rule. Although the decision ignores the process of biogeochemical cycling, it nonetheless creates a predictable precedent. Additionally, this Comment argues that the Seventh Circuit's decision will not have a practical impact on the remediation of the Bloomington, Indiana sites, or any other CERCLA cleanup sites in the court's jurisdiction, because the EPA's remediation plans, which account for biogeochemical cycling, will continue unaffected.

INTRODUCTION

In 1979, the Environmental Protection Agency (EPA) banned the manufacture, distribution, use, and storage of polychlorinated biphenyls ("PCBs"), a carcinogenic chemical that is harmful to humans and animals.¹ For Rich-

* Staff Writer, BOSTON COLLEGE ENVIRONMENTAL AFFAIRS LAW REVIEW, 2014–2015.

¹ 40 C.F.R. § 761.20 (1979); *Frey v. U.S. Envtl. Prot. Agency (Frey III)*, 751 F.3d 461, 463 (7th Cir. 2014), *cert. denied*, 135 S. Ct. 494 (2014); Josephine Borja et al., *Polychlorinated Biphenyls and Their Biodegradation*, 40 PROCESS BIOCHEMISTRY 1999, 2001 (2005); Michael Schroeder, *Did Westinghouse Keep Mum on Pc Bs?*, BLOOMBERG BUSINESSWEEK (Aug. 11, 1991), <http://www.bloomberg.com/news/1991-08-11/did-westinghouse-keep-mum-on-pc-bs/>.

ard K. Sluder and other residents of Bloomington, Indiana, however, that was too late.² Mr. Sluder claims his severe arthritis and memory loss were caused by PCB exposure while working for Westinghouse Electric Corporation—now known as Columbia Broadcasting System (“CBS”).³ Mr. Sluder’s blood test results revealed a PCB concentration of 3450 parts per billion—the highest concentration ever found in a human.⁴ Beyond the walls of its local facilities, CBS exposed the community to PCBs by discharging the chemical at six dumpsites in and around Bloomington.⁵ In fact, Bloomington had the largest volume of PCBs—650,000 cubic yards of landfill soil—anywhere in the United States.⁶

PCBs have many disastrous environmental and health effects.⁷ They have been linked to ailments including rare liver cancers, malignant melanoma, a rare skin disease called chloracne, and clinical hepatitis.⁸ Beyond humans, “[PCBs] can affect the productivity of phytoplankton and the composition of phytoplankton communities.”⁹ These tiny creatures, at the bottom of the food chain, are the primary source of oxygen to the atmosphere.¹⁰ Further, PCBs are transferred through the food chain from phytoplankton to invertebrates, fish, and mammals, including humans.¹¹

Bloomington is situated upon limestone karst and dissolved soluble rocks rife with fissures, cracks, and pores.¹² Groundwater containing PCBs filters through the pores of the limestone karst and soluble rocks and ultimately saturates the sediment below the surface.¹³ Once the groundwater, the karst, and the rocks are polluted, environmental cleanup is extremely difficult.¹⁴

businessweek.com/stories/1991-08-11/did-westinghouse-keep-mum-on-pc-bs, archived at <http://perma.cc/UXB2-3WSZ>.

² Schroeder, *supra* note 1.

³ *Id.*; Geraldine Fabrikant, *CBS Accepts Bid by Westinghouse; \$5.4 Billion Deal*, N.Y. TIMES, Aug. 2, 1995, at A1, available at <http://www.nytimes.com/1995/08/02/business/cbs-accepts-bid-by-westinghouse-5.4-billion-deal.html?pagewanted=1>, archived at <http://perma.cc/MLC5-YT4U>.

⁴ Schroeder, *supra* note 1.

⁵ See *Frey v. U.S. Env'tl. Prot. Agency*, 937 F. Supp. 2d 964, 966 (D. Ind. 2013), *aff'd*, 751 F.3d 461 (7th Cir. 2014).

⁶ Schroeder, *supra* note 1.

⁷ See 40 C.F.R. § 761.20 (1979); *Frey III*, 751 F.3d at 463; Borja et al., *supra* note 1, at 2001.

⁸ Borja et al., *supra* note 1, at 2001. Other PCB-related ailments include body weight loss, headaches, dizziness, depression, nervousness, fatigue, and impaired reproduction. *Id.*

⁹ *Id.*

¹⁰ *What Are Phytoplankton?*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., <http://oceanservice.noaa.gov/facts/phyto.html> (last updated Apr. 29, 2014), archived at <http://perma.cc/Q6YY-URZL>.

¹¹ Borja et al., *supra* note 1, at 2001.

¹² *Frey III*, 751 F.3d at 464; *United States v. CBS Corp.*, No. 1:81-cv-448-RLY-KPF, 2009 WL 2230889, at *2 (D. Ind. July 23, 2009); Schroeder, *supra* note 1.

¹³ See *Frey*, 937 F. Supp. 2d at 967.

¹⁴ *Frey III*, 751 F.3d at 464.

Such environmental cleanup efforts are often conducted in stages.¹⁵ A stage might focus on a particular pollutant, a polluted environmental compartment, or a polluted area.¹⁶ Although a staged remediation approach purports to clean polluted sites in a linear, systematic way, biogeochemical cycling—the transfer of particles between environmental compartments—makes it difficult to tell where one polluted compartment begins and another ends, and thus makes it difficult to achieve discrete, linear stages of cleanup.¹⁷

In 2014, in *Frey v. U.S. Environmental Protection Agency*, the U.S. Court of Appeals for the Seventh Circuit decided that section 113(h)(4) of the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”) bars review of the EPA’s planned or pending stages of an environmental cleanup, but allows review of completed stages as long as they are not directly related to the EPA’s new remediation plans.¹⁸ This Comment argues that the Seventh Circuit made a satisfactory legal compromise because, despite largely ignoring the scientific process of biogeochemical cycling, it will not undermine the ultimate goal: total remediation of the contaminated Bloomington sites.¹⁹

I. FACTS AND PROCEDURAL HISTORY

From 1958 until 1972, CBS manufactured electric capacitors insulated with fluid composed of PCBs in a Bloomington, Indiana facility.²⁰ During this period, CBS dumped defective capacitors into landfills in and around Bloomington, where PCBs then leaked out from the capacitors and into the environment.²¹ PCB contamination originating from the CBS manufactur-

¹⁵ ZYGMUNT J.B. PLATER ET AL., ENVIRONMENTAL LAW AND POLICY: NATURE, LAW, AND SOCIETY 725–28 (4th ed. 2010); see *Frey III*, 751 F.3d at 467.

¹⁶ See *Frey III*, 751 F.3d at 468; PLATER ET AL., *supra* note 15, at 725–28 and accompanying text.

¹⁷ See ROY M. HARRISON, UNDERSTANDING OUR ENVIRONMENT: AN INTRODUCTION TO ENVIRONMENTAL CHEMISTRY AND POLLUTION 237–39 (3rd ed. 1999). The physical states of pollutants (e.g., gas to liquid) and location (e.g., landfill to groundwater) shift. *Id.* This shifting complicates remediation because pinpointing pollutants and polluted areas and physically distinguishing them can be very difficult. See *id.*

¹⁸ See 751 F.3d at 467–68.

¹⁹ See *infra* notes 96–123 and accompanying text (this Comment does not argue that it will effectuate that goal or that it will not—merely that it will not undermine that goal); see also HARRISON, *supra* note 17, at 237–39 (explaining the scientific reason underlying the fundamental flaw in the court’s opinion).

²⁰ *Frey III*, 751 F.3d at 463; *Frey*, 937 F. Supp. 2d at 966. Electric capacitors store electric energy. Robert Worth, *Legacy of Poison in Twice-Excavated Yards*, N.Y. TIMES, July 12, 2001, at B5, available at <http://www.nytimes.com/2001/07/12/nyregion/legacy-of-poison-in-twice-excavated-yards.html>, archived at <http://perma.cc/Z4YU-2L9T>. Historically, CBS used PCBs to insulate the electric capacitors. *Id.*

²¹ *Frey III*, 751 F.3d at 463 (“CBS also discharged PCB-laden water from its plant to a local sewage treatment plant.”).

ing facility was discovered in the soil, streams, plants, and wildlife surrounding Bloomington in the late 1970s.²² To force CBS to remediate six sites contaminated with PCBs, the U.S. Government, the State of Indiana, Monroe County, and the City of Bloomington filed enforcement actions under CERCLA.²³ A 1985 consent decree mandated that CBS excavate contaminated materials in six affected sites and to destroy the materials in an incinerator.²⁴ The solution outlined in the consent decree was tabled, however, after the Indiana legislature blocked construction of the incinerator due to public opposition.²⁵

The EPA, the State of Indiana, the Indiana Department of Environmental Management, the City of Bloomington, the Bloomington Utilities Service Board, Monroe County, and CBS (the “parties”), eventually agreed to modify the cleanup plans at three of the six contaminated sites: Anderson Road Landfill, Winston-Thomas Plant, and Neal’s Dump.²⁶ They were unable to reach an agreement for the other three sites: Lemon Lane Landfill, Neal’s Landfill, and Bennett’s Dump.²⁷ Absent a comprehensive plan to clean the three disputed sites, the parties worked together to commence cleanup efforts in stages.²⁸ Staged cleanup allowed CBS to begin cleaning up the three sites while the parties negotiated other aspects of remediation.²⁹

The extended and intermittent negotiations eventually resulted in an agreement for a three-staged cleanup process.³⁰ Each stage was outlined in

²² *Frey*, 937 F. Supp. 2d at 966.

²³ *Frey III*, 751 F.3d at 463. A judicial enforcement action is a lawsuit filed to compel a party to “comply with statutory or regulatory requirements, with an administrative order, or who owe [the] EPA response costs for cleaning up a superfund site.” *Enforcement Basic Information*, U.S. ENVTL. PROT. AGENCY, <http://www2.epa.gov/enforcement/enforcement-basic-information> (last updated Jan. 15, 2015), *archived at* <http://perma.cc/M6VY-P8L5>.

²⁴ *Frey v. U.S. Env’tl. Prot. Agency (Frey I)*, 270 F.3d 1129, 1130 (7th Cir. 2001); *Frey*, 937 F. Supp. 2d at 966. A consent decree is an agreement between parties to settle a dispute without an admission of guilt. *Consent Decree Definition*, FREEDICTIONARY.COM, <http://legal-dictionary.thefreedictionary.com/consent+decree> (last visited Jan. 22, 2015), *archived at* <http://perma.cc/PHR3-GPUJ>. The six Bloomington area sites involved in the cleanup were (1) Anderson Road Landfill, (2) Winston-Thomas Plant, (3) Neal’s Dump, (4) Lemon Lane Landfill, (5) Neal’s Landfill, and (6) Bennett’s Dump. *Frey*, 937 F. Supp. 2d at 966.

²⁵ RONALD A. HITES & JONATHAN D. RAFF, *ELEMENTS OF ENVIRONMENTAL CHEMISTRY* (2d ed. 2012). The incinerator fell victim to the “Not in my Backyard” phenomenon: Bloomington residents, weary of the incinerator being built in their community, convinced Indiana legislators to pass a series of laws that blocked its construction. *Id.*

²⁶ *Frey*, 937 F. Supp. 2d at 967.

²⁷ *Id.*

²⁸ *Frey III*, 751 F.3d at 464.

²⁹ *Id.*

³⁰ *Id.* Bloomington’s geology, featuring limestone karst, makes total remediation difficult, which necessitates additional remediation stages. *See id.* at 464; *supra* notes 12–17 and accompanying text. Stage 1 required CBS to extract PCB-contaminated sediment from Lemon Lane Landfill and Neal’s Landfill, to clean all sediment at Bennett’s Dump, and to construct a “landfill cap” at all three sites to halt the spread of contaminated sediment. *Frey III*, 751 F.3d at 464. Stages 2

several Records of Decision published by the EPA.³¹ In “Stage 1,” CBS targeted PCB contamination at the three landfills by removing, cleaning, and capping contaminated sediment.³² After Stage 1 concluded in 2000, however, PCBs were found to be continually seeping from the bedrock into the groundwater and sediment, despite the completion of the cleanup stage.³³

In 2006, after the parties agreed to the terms of “Stage 2” and “Stage 3” of the CERCLA cleanup, remediation of the three sites recommenced, targeting ongoing and future contamination of groundwater and sediment.³⁴ According to the agreements, CBS was required to operate water treatment systems at Lemon Lane Landfill, Neal’s Landfill, and Bennett’s Dump.³⁵ CBS was also required to test the water at the sites periodically until the concentration of PCBs was equal to or below EPA limits for one year.³⁶ Stage 2 and Stage 3 remediation efforts were ongoing as of May 2014.³⁷

The plaintiffs in *Frey v. U.S. Environmental Protection Agency* (*Frey III*)—activists who believe the EPA’s current plan does not comply with federal or state law—previously brought this citizen suit under CERCLA in 2000, and again in 2004, to halt CBS’s remediation efforts.³⁸ The U.S. Dis-

and 3 are ongoing and require CBS to “operate a water treatment plant at Lemon Lane Landfill,” “operate a groundwater collection and treatment system at Neal’s landfill,” and operate a new drainage system, water treatment plant, and collection trench at Bennett’s Dump. *Id.*

³¹ *Frey I*, 270 F.3d at 1134. A Record of Decision is “a public document that explains which cleanup alternatives will be used to clean up a Superfund site.” *Record of Decision*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/superfund/cleanup/rod.htm> (last updated Aug. 9, 2011), archived at <http://perma.cc/KP83-EJAU>.

³² *Frey III*, 751 F.3d at 464. In Stage 1, CBS was required to remove highly contaminated sediment from Lemon Lane Landfill and Neal’s Landfill, clean all sediment at Bennett’s dump to “industrial standards,” and contain any remaining contaminated sediment with a clay landfill cap at all three sites. *Id.*

³³ *Id.* Bedrock is the solid rock underlying loose deposits, like soil. *Bedrock*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/bedrock> (last visited Jan. 22, 2015), archived at <http://perma.cc/H4XF-6YSR>. The diffusion of pollutant materials from the bedrock is not surprising because pollutant materials shift between environmental compartments. See HARRISON, *supra* note 17, at 237.

³⁴ *Frey III*, 751 F.3d at 464.

³⁵ *Id.* CBS was also tasked with developing a drain and water treatment system at Bennett’s Dump. *Id.*

³⁶ *Id.* “Effluent guidelines are national standards, based on the performance of treatment and control technologies, for wastewater discharges to surface waters and municipal sewage treatment plants.” *Effluent Limitation Guidelines*, U.S. ENVTL. PROT. AGENCY, <http://water.epa.gov/scitech/wastetech/guide/index.cfm> (last updated Apr. 15, 2014), archived at <http://perma.cc/SH5D-SDQC>.

³⁷ *Frey III*, 751 F.3d at 464. As of January 30, 2015, construction related to Stages 2 and 3 had been completed at Neal’s Landfill and Lemon Lane Landfill, while construction related to Stages 2 and 3 at Bennett’s Dump is ongoing. Telephone Interview with Jeff Cahn, Associate Regional Counsel, U.S. Env’tl. Prot. Agency (Jan. 30, 2015). As of January 30, 2015, maintenance work associated with Stages 2 and 3, such as checking equipment and testing water, is ongoing at all three sites. *Id.*

³⁸ *Frey III*, 751 F.3d at 465; see *Frey v. U.S. Env’tl. Prot. Agency* (*Frey II*), 403 F.3d 828 (7th Cir. 2005) (reversing the district court holding that the EPA was in between stages of the Bloom-

trict Court for the Southern District of Indiana dismissed both previous iterations of the suit for lack of subject matter jurisdiction—holding that section 113(h)(4) of CERCLA barred the suits.³⁹ On appeal, the U.S. Court of Appeals for the Seventh Circuit reversed both decisions, holding that the district court had subject matter jurisdiction because supposed future remedial action at the sites was not sufficiently definite to trigger section 113(h)(4).⁴⁰

In 2009, in *Frey III*, the plaintiffs brought their suit for a third time.⁴¹ Their complaint alleged that the EPA did not complete the CERCLA mandated remedial investigation and feasibility study (“RI/FS”), or an equivalent study, before selecting Stages 1, 2, and 3.⁴² Additionally, the plaintiffs argued Stages 1, 2, and 3 violated CERCLA’s mandate that the EPA protect human health and the environment.⁴³

The district court dismissed the plaintiff’s claims relating to Stages 2 and 3 because work on those stages was ongoing, thus triggering section 113(h)(4) of CERCLA.⁴⁴ In light of the Seventh Circuit’s holdings in the two previous dispositions of *Frey v. U.S. Environmental Protection Agency* (*Frey I* and *Frey II*), however, the court allowed the plaintiff’s claim challenging Stage 1.⁴⁵ The district court reasoned that because the EPA’s plans were not sufficiently concrete and certain by the time Stage 1 was complete, Stages 2 and 3 were not sufficiently related to Stage 1 for the court to consider them a continuation of the same remediation plan.⁴⁶ It thus decided that although section 113(h)(4) barred review of Stages 2 and 3 of the remediation for the contaminated sites, Stage 1 was reviewable because it was completed and not directly related to the EPA’s new remediation plans.⁴⁷

The plaintiffs appealed the district courts decision to the Seventh Circuit, arguing that CERCLA’s bar on judicial review does not apply to their claims

ington cleanup, thereby permitting citizen suits under CERCLA); *Frey I*, 270 F.3d at 1130 (reversing the district court holding that the court lacked subject matter jurisdiction because CERCLA only bars citizen suits when remediation is incomplete).

³⁹ *Frey*, 937 F. Supp. 2d at 965; see *Frey III*, 751 F.3d at 465. CERCLA section 113(h)(4) bars citizen suits “where a remedial action is to be undertaken at the site.” Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9613(h)(4) (2012).

⁴⁰ *Frey II*, 403 F.3d at 835–36; *Frey I*, 270 F.3d at 1134–35.

⁴¹ *Frey III*, 751 F.3d at 465 (noting that the plaintiffs filed the Third Amended Complaint).

⁴² *Id.* “This regulatory process requires [the] EPA to develop a list of effective remedial alternatives and to assess their feasibility.” *Frey II*, 403 F.3d at 830.

⁴³ *Frey III*, 751 F.3d at 465.

⁴⁴ *Id.*; see *infra* notes 65–84 and accompanying text (identifying the context in which section 113(h)(4) applies).

⁴⁵ *Frey III*, 751 F.3d at 465; *Frey II*, 403 F.3d at 828; *Frey I*, 270 F.3d at 1130. The court granted summary judgment for the EPA on all Stage 1 related claims because the equivalent of an RI/FS had been completed, and the remedies protected human health and the environment. *Frey III*, 751 F.3d at 465.

⁴⁶ *Frey III*, 751 F.3d at 468.

⁴⁷ *Id.* at 468–69.

challenging Stages 2 or 3.⁴⁸ On appeal, the Seventh Circuit was faced with an issue of first impression: whether the district court was correct in concluding that section 113(h)(4) did not bar the plaintiff's citizen suit challenging Stage 1 because it was not sufficiently related to Stages 2 and 3.⁴⁹

In May, 2014, in *Frey III*, the Seventh Circuit upheld the district court's determination that section 113(h)(4) barred review of Stages 2 and 3 because the stages were sufficiently underway, but that Stage 1—completed at the time of the case—was reviewable because it was not directly related to the EPA's remediation plans in Stages 2 and 3.⁵⁰ In reaching its decision, the court identified three possible solutions to resolve the issue.⁵¹

The first possible solution was that section 113(h)(4) could be construed to bar review of completed remediation as soon as new plans at the site are selected by the EPA and sufficiently definite.⁵² The court rejected this interpretation, as it would constitute a "silent prohibition" on citizen suits.⁵³ The second possible solution would permit judicial review of prior actions regardless of new remediation stages proposed by the EPA.⁵⁴ If a newly proposed stage is similar to, or arises out of, the previous stage, then the court could not review the new stage without effectively reviewing the previous stage.⁵⁵ Thus, any overlapping stages, the court reasoned, would certainly violate section 113(h)(4)'s ban on reviewing ongoing remedial action.⁵⁶

⁴⁸ *Id.* at 466–68.

⁴⁹ *Id.* at 468.

⁵⁰ *Id.* at 468–69. The court further made three extraneous holdings in the decision. *See id.* at 463. First, the citizens were not entitled to attorney fees because they were not the prevailing party. *Id.* at 471. Second, recusal of the judge was improper because the judge's previous rulings on similar issues stemmed, in part, from the fact that the citizens had introduced the recurring arguments. *Id.* at 472. Moreover, the court explained that judges commonly rule on familiar factors without developing bias or antagonism towards the parties or arguments. *Id.* Third, the EPA satisfied its duty under CERCLA in completing the functional equivalent of a RI/FS because the EPA thought Stage 1 was an important step, but not enough, in combating PCB pollution at the sites. *Id.* at 470–71.

⁵¹ *Id.* at 468.

⁵² *Id.*

⁵³ *Id.* By allowing the EPA to quash review, this approach would effectively nullify section 113(h)(4) because the EPA would be able to eliminate citizen suits indefinitely by proposing small future remediation stages whenever a citizen suit arises. *Id.*; *see Frey I*, 270 F.3d at 1134 ("One can always imagine some future action especially, in the area of environmental regulation, but the time limits in § 113(h) are geared to concrete, existing, remedial measures; not measures that might be devised at some future date."). Moreover, this interpretation could result in citizen suits being undermined by new remediation plans after plaintiffs have spent considerable time and resources pursuing the claims. *See Frey III*, 751 F.3d at 468.

⁵⁴ *Frey III*, 751 F.3d at 468.

⁵⁵ *Id.*

⁵⁶ *See id.*

In the absence of dispositive case law or guidance from CERCLA, the Seventh Circuit settled on a third, middle ground option.⁵⁷ It held that a new remediation plan does not bar a citizen suit pursuant to section 113(h)(4) if the old plan is not related to the new plan.⁵⁸ Further, the court held that overlapping portions of stages are barred from review.⁵⁹ To illustrate the meaning of *related* in this context, the court explained that plans dealing with a different pollutant, area, or polluted compartment would be sufficiently different to allow review of the initial plan.⁶⁰ Pursuant to this approach, the court held that because Stage 1 was completed at the time of filing, and because it dealt with different issues than the new remediation plans in Stages 2 and 3, it was subject to judicial review, whereas review of Stages 2 and 3—which remain ongoing today—is barred by section 113(h)(4).⁶¹

II. LEGAL BACKGROUND

A. CERCLA

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (“CERCLA”) is a federal statute that facilitates the cleanup and remediation of pollution.⁶² CERCLA authorizes the Environmental Protection Agency (EPA) to conduct removal or remedial action when contaminants pose a threat to the public health or welfare or to the environment.⁶³ In addition to enabling direct action, CERCLA allows the EPA to compel the party responsible for the pollution to conduct the removal and remedial action.⁶⁴

To prevent stalling or derailing remedial efforts, Congress constrained judicial review of citizen suits challenging the EPA’s cleanup actions.⁶⁵ Section 113(h)(4) of CERCLA bars federal courts from “review[ing] any challenges to removal or remedial action selected [by the EPA] . . . where a reme-

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ *See id.* at 469.

⁶² *Schalk v. Reilly*, 900 F.2d 1091, 1092 (7th Cir. 1990); *see* Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 (2012) (CERCLA sections are commonly used to reference the statute in lieu of the corresponding section of the U.S. Code).

⁶³ 42 U.S.C. § 9604; *Schalk*, 900 F.2d at 1097 (reaffirming federal courts’ inability to hear citizen suits regarding incomplete remedial actions). “Removal” refers to a stopgap remedy to address immediate risks posed by pollution, whereas “remedial” refers to long-term, permanent remedies. 42 U.S.C. § 9601(23)–(24).

⁶⁴ *Schalk*, 900 F.2d at 1092.

⁶⁵ *Alabama v. U.S. Env’tl. Prot. Agency*, 871 F.2d 1548, 1560 (11th Cir. 1989); *see* 42 U.S.C. § 9613(h); *Frey v. U.S. Env’tl. Prot. Agency (Frey II)*, 403 F.3d 828, 836 (7th Cir. 2005).

dial action is to be undertaken at the site.”⁶⁶ This bar on citizen suits lasts from the time the EPA selects a remedial action to the time the action is complete.⁶⁷ When a remedial action involves several stages, section 113(h)(4) bars a citizen suit until the final stage is complete.⁶⁸

Federal courts rely on section 113(h)(4)’s plain language in determining that they lack subject matter jurisdiction under CERCLA until the remedial action is complete.⁶⁹ The U.S. Court of Appeals for the Eleventh Circuit, in *Alabama v. U.S. Environmental Protection Agency*, held that because section 113(h)(4) is written in the past tense, Congress was referring to acts that happened in the past.⁷⁰ It thus found that citizen suits are not permitted until after remedial action is complete.⁷¹ Similarly, the U.S. Court of Appeals for the Tenth Circuit, in *Cannon v. Gates*, interpreted the language in section 113(h)(4) broadly, holding that Congress aimed to “strip” judicial authority to review cases interfering with an ongoing cleanup.⁷²

A remedial plan is legally complete when all stages of the selected remedy have been fully executed.⁷³ The continued existence of *concrete and definite future* remedial stages of a plan, to be executed, thus bars citizen suits, whereas *distant and hypothetical future* remedial actions that might become part of a cleanup are considered distinct and do not trigger section 113(h)(4).⁷⁴ To determine whether or not a planned remedial stage triggers section 113(h)(4), courts look for evidence that sufficiently concrete and definite future work is planned.⁷⁵ A Record of Decision is a sufficient—though unnecessary—objective referent; a less formal indicator could be enough to indicate the presence of sufficiently concrete and definite future work.⁷⁶

⁶⁶ 42 U.S.C. § 9613(h).

⁶⁷ See *Schalk*, 900 F.2d at 1095.

⁶⁸ *Frey v. U.S. Env'tl. Prot. Agency (Frey I)*, 270 F.3d 1129, 1134 (7th Cir. 2001).

⁶⁹ *Alabama*, 871 F.2d at 1557.

⁷⁰ *Id.*

⁷¹ *Id.* The U.S. Court of Appeals for the Eleventh Circuit held that they did not have jurisdiction over claims brought in a citizen suit contesting placement of a toxic waste disposal site because no citizen suit can be brought until a remedial action is completed. *Id.* at 1560. House conference reports show notes indicating that the legislature wanted judicial review of remediation actions off the table until stages of those actions are complete. *Id.* at 1557; see, e.g., H.R. REP. NO. 99-962, at 224 (1986) (Conf. Rep.), reprinted in 1986 U.S.C.C.A.N. 2835, 3317.

⁷² 538 F.3d 1328, 1336 (10th Cir. 2008). The Tenth Circuit upheld a jurisdictional bar on citizens’ claims challenging the Department of the Army’s disposal of toxic chemicals because the Army’s monitoring of the situation amounted to an “ongoing remedial action” for the purposes of CERCLA. See *id.* at 1330–36.

⁷³ *Frey I*, 270 F.3d at 1134; *N. Shore Gas Co. v. U.S. Env'tl. Prot. Agency*, 930 F.2d 1239, 1244 (7th Cir. 1991).

⁷⁴ See *Frey I*, 270 F.3d at 1134.

⁷⁵ See *Frey II*, 403 F.3d at 834–35.

⁷⁶ *Id.* at 835.

In 2001, in *Frey v. U.S. Environmental Protection Agency (Frey I)*, the U.S. Court of Appeals for the Seventh Circuit held that that section 113(h)(4) bars citizen suits when remedial action is to be done, even if a previous stage is complete.⁷⁷ The court relied on section 113(h)(4)'s plain language, referring to Congress' use of "remedial action" instead of "a remedial action," or "stage of a remedial action."⁷⁸ The court implied that if Congress intended to define a completed stage as completed remedial action, it would have done so.⁷⁹

In 2005, in *Frey v. U.S. Environmental Protection Agency (Frey II)*, the Seventh Circuit held that the EPA could not point to concrete evidence that indicated future remediation was sufficiently definite at three Bloomington, Indiana cleanup sites: Lemon Lane Landfill; Neal's Landfill; and Bennett's Dump.⁸⁰ Therefore, the court held that according to its holding in *Frey I*, Stage 1, which was complete, was ripe for judicial review despite the pending future work to be done in Stages 2 and 3.⁸¹

The U.S. District Court for the District of Columbia came to a different qualitative conclusion than the Seventh Circuit.⁸² In *Anacostia Riverkeeper v. Washington Gas Light Co.*, private organizations pursued a citizen suit to enjoin a gas company's remedial efforts near the Anacostia River in Washington, D.C.⁸³ The court held that indefinite but imminent remediation plans at a site where cleanup efforts had ceased still triggered section 113(h)(4) because the EPA was "moving ahead diligently."⁸⁴

B. Judicial Responsibility to Understand Scientific Issues; Biogeochemical Cycling

Federal trial judges are evidentiary gatekeepers and are expected to be scientifically literate in cases with scientific evidentiary issues.⁸⁵ This gatekeeping role includes the responsibility to determine the admissibility of

⁷⁷ *Frey I*, 270 F.3d at 1134.

⁷⁸ *Id.*

⁷⁹ *See id.*

⁸⁰ *Frey II*, 403 F.3d. at 828, 834–36.

⁸¹ *See id.* at 834–36 (finding that because the EPA could not show concrete and definite plans for future remediation, the work done at the time of the case was ripe for judicial review).

⁸² *Anacostia Riverkeeper v. Wash. Gas Light Co.*, 892 F. Supp. 2d 161, 164 (D. D.C. 2012).

⁸³ *Id.*

⁸⁴ *Id.* at 172. The holding in *Anacostia Riverkeeper* was inconsistent with the Seventh Circuit's decision in *Frey II*. Compare *id.* (allowing indefinite future remediation plans to trigger the section 113(h)(4) bar on citizen suits), with *Frey II*, 403 F.3d at 834–36 (requiring concrete evidence of future remediation plans to trigger the section 113(h)(4) bar on citizen suits).

⁸⁵ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589 (1993); Adam J. Siegel, Note, *Setting Limits on Judicial Scientific, Technical, and Other Specialized Fact-Finding in the New Millennium*, 86 CORNELL L. REV. 167, 169–71 (2000).

expert witness testimony relating to scientific matters.⁸⁶ Although the nexus of science and law can be complex, the Supreme Court, in *Daubert v. Merrell Dow Pharmaceuticals*, directed federal judges to embrace relevant and reliable scientific evidence in their courtrooms.⁸⁷ Though judges are not expected to master all facets of science, they are expected to be proficient in scientific language and methodology.⁸⁸ Pursuant to this expectation, there are many resources available to them to simplify scientific concepts.⁸⁹ For example, they may use court-appointed experts, seminars, and their own research to help them grasp scientific matters.⁹⁰

Scientists have understood and accepted one such concept for decades: the process of biogeochemical cycling.⁹¹ Biogeochemical cycling is the “complex interplay of biological, geological and chemical processes by which materials . . . are exchanged and reused at the Earth’s surface.”⁹² It is established that matter—including pollutants—diffuses through environmental compartments, such as from a landfill to the underlying groundwater, unless it is carefully controlled.⁹³ Thus, according to process of biogeochemical cycling, the judicial definition of when a remedial plan is complete is misleading, and in many cases incorrect.⁹⁴ As such, although a completed remediation might satisfy legal obligations, it could leave a contaminated site vulnerable to the reintroduction of the same pollutants targeted in the supposedly completed remediation.⁹⁵

III. ANALYSIS

The U.S. Court of Appeals for the Seventh Circuit’s middle ground approach, in *Frey v. U.S. Environmental Protection Agency (Frey III)*, in deciding whether section 113(h)(4) of the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”) blocks citizen suits challenging ongoing staged environmental cleanup projects, is a satisfactory

⁸⁶ *Daubert*, 509 U.S. at 589–91; Siegel, *supra* note 85, at 169.

⁸⁷ See *Daubert*, 509 U.S. at 589–90; David L. Faigman, *Mapping the Labyrinth of Scientific Evidence*, 46 HASTINGS L.J. 555, 555–56 (1995).

⁸⁸ Faigman, *supra* note 87, at 579.

⁸⁹ See Siegel, *supra* note 85, at 169–71.

⁹⁰ See *id.*

⁹¹ See HARRISON, *supra* note 17, at 237–38; John I. Hedges, *Global Biogeochemical Cycles: Progress and Problems*, 39 MARINE CHEMISTRY 67 (1992) (summarizing a contemporary understanding of biogeochemical cycling in the scientific community), available at http://www.ic.ucsc.edu/~mdmccar/ocea213/readings/discuss_2_Hedges/Hedges_1992_MarChem_global_biogeochem_cycles_progress_problems.pdf, archived at <http://perma.cc/NK3K-W5PM>.

⁹² See HARRISON, *supra* note 17, at 237–38.

⁹³ See *id.*; HEDGES, *supra* note 92, at 67.

⁹⁴ See *supra* notes 73–76, 92–93 and accompanying text.

⁹⁵ See HARRISON, *supra* note 17, at 237–38.

legal solution to an unfortunate, but inevitable environmental problem.⁹⁶ By forging a middle ground, the court avoided a functional prohibition on judicial review of citizen suits challenging Environmental Protection Agency (EPA) cleanup plans, while also preventing citizen suits from derailing multi-stage remediation plans before they are completed.⁹⁷ Further, it is consistent with the court's holdings in the two prior dispositions of this citizen suit.⁹⁸ By allowing citizen suits challenging finished remedial stages that are sufficiently unrelated to ongoing stages, the court forged a necessary and functional legal compromise.⁹⁹

The middle ground approach promotes predictable future judicial results, but it does so at the risk of ignoring scientific facts.¹⁰⁰ Although the Seventh Circuit's decision is legally satisfactory, it relies on the false premise that pollutants remain static between environmental compartments.¹⁰¹ The court's decision rests on a literal presumption about the scientific nature of environmental compartments that is at odds with the well-accepted concept of biogeochemical cycling.¹⁰² That concept holds that pollutants will move between environmental compartments even after a compartment has been cleaned in a remediation stage.¹⁰³

Courts and regulators will find it easier to accept *Frey III*'s environmental compartmentalization than will scientists and environmentalists familiar with pollution and biogeochemical cycling.¹⁰⁴ Due to the topographical nature of the Bloomington sites, and more specifically, the potential recontamination of environmental compartments with polychlorinated biphenyls ("PCBs") that were thought to have been removed, biogeochemical cycling suggests that all stages of the CERCLA mandated cleanup at the

⁹⁶ See *Frey v. U.S. Env'tl. Prot. Agency (Frey III)*, 751 F.3d 461, 468 (7th Cir. 2014), *cert. denied*, 135 S. Ct. 494 (2014); see also J. Harvie Wilkinson III, *The Rehnquist Court at Twilight: The Lures and Perils of Split-the-Difference Jurisprudence*, 58 STAN. L. REV. 1969, 1995 (2006) (evaluating the merits of "split-the-difference" jurisprudence).

⁹⁷ See *Frey III*, 751 F.3d at 468.

⁹⁸ See *Frey v. U.S. Env'tl. Prot. Agency (Frey II)*, 403 F.3d 828, 836 (7th Cir. 2005) (the second of the two converse holdings *Frey III* reconciles); *Frey v. U.S. Env'tl. Prot. Agency (Frey I)*, 270 F.3d 1129, 1134 (7th Cir. 2001) (the first of the two converse holdings *Frey III* reconciles); *supra* notes 41–61 and accompanying text.

⁹⁹ See *Frey III*, 751 F.3d at 468; Wilkinson, *supra* note 96, at 1977. To determining whether an ongoing remedial stage is distinct from finished remedial stage, experts will examine the targeted polluted compartment, the pollutant, or the area. See *Frey III*, 751 F.3d at 468.

¹⁰⁰ See *Frey III*, 751 F.3d at 468; *supra* notes 85–95 and accompanying text.

¹⁰¹ See *supra* notes 85–95 and accompanying text (explaining the pervasively accepted scientific concept of biogeochemical cycling and why it supports the conclusion that all remedial stages are inherently connected); *infra* notes 103–123 and accompanying text.

¹⁰² See *supra* notes 85–95 and accompanying text.

¹⁰³ See *supra* notes 85–95 and accompanying text.

¹⁰⁴ See *Frey III*, 751 F.3d at 469; Timothy L. Amsden, *Assembling Your State Groundwater Protection Strategy*, 35 U. KAN. L. REV. 335, 336 (1987).

sites are physically related.¹⁰⁵ The Seventh Circuit even acknowledged that its compromise is likely better in theory than in practice.¹⁰⁶ Environmental laws and regulations are set forth independently of each other and are often impractically compartmentalized.¹⁰⁷ This compartmentalization ignores the tried and true environmental cliché that the environment is an “interconnected web of groundwater, surface water, air, and soil.”¹⁰⁸ Pollutants present in one environmental compartment will likely enter others.¹⁰⁹ Many pollutants—including the PCBs contaminating the Bloomington sites—degrade slowly and move between environmental compartments.¹¹⁰

Although judges might find understanding biogeochemical cycling to be daunting and illusive, they are expected to be scientifically literate.¹¹¹ Had the Seventh Circuit explored biogeochemical cycling, it would have found that the concept complicates its decision in *Frey III*.¹¹² Cleanup stages that focus on specific parts of the environment (e.g., groundwater or sediment), like those remediating the dumpsites in Bloomington, might not be effective if pollution can leak into areas that have already been cleaned.¹¹³ Remediation is therefore difficult with a stage-based approach unless stages run concurrently to account for and limit recontamination.¹¹⁴

Similar to the Seventh Circuit’s admission that its decision in *Frey III* might be better in theory than in practice, those responsible for cleaning up the Bloomington sites acknowledge that PCB pollution crosses environmental compartments, and thus that the completed Stage 1 of the remediation was not entirely effective.¹¹⁵ The EPA project manager at the Bloomington sites explained that the cleanup will continue for “dozens and dozens” of years because “nobody” knows when or how PCBs might diffuse from the karst bedrock into the water supply.¹¹⁶

Although the courts are likely to continue drawing illusory distinctions between environmental compartments and stages of cleanups, the EPA will

¹⁰⁵ See *supra* notes 85–95 and *infra* notes 111–123 and accompanying text.

¹⁰⁶ *Frey III*, 751 F.3d at 469.

¹⁰⁷ See Amsden, *supra* note 104, at 336.

¹⁰⁸ *Id.*; see HARRISON, *supra* note 17, at 237–39.

¹⁰⁹ See HARRISON, *supra* note 17, at 237–39.

¹¹⁰ See *id.*

¹¹¹ Siegel, *supra* note 85, at 169–71.

¹¹² See 751 F.3d at 469; HARRISON, *supra* note 17, at 237–39; Amsden, *supra* note 104, at 336.

¹¹³ See HARRISON, *supra* note 17, at 237–39; Amsden, *supra* note 104, at 336.

¹¹⁴ See HARRISON, *supra* note 17, at 237–39.

¹¹⁵ See generally Sehvilla Mann, *How Toxic PCBs Are Contaminating Bloomington’s Groundwater*, IND. PUB. MEDIA (Dec. 19, 2013), <http://indianapublicmedia.org/news/bloomington-pcb-cleanup-dozen-60249/>, archived at <http://perma.cc/W5NT-SW68> (surveying the remaining PCB contamination at the Bloomington area cleanup sites).

¹¹⁶ See *id.*

continue to build equipment to attempt to clean sites that are supposedly remediated by a finished stage, if in reality, it knows the site is still contaminated.¹¹⁷ For example, the EPA built a water treatment facility in Bloomington that has cleaned 1.5 billion gallons of PCB-contaminated water in the last fourteen years.¹¹⁸ The Seventh Circuit's decision to proceed with its middle ground approach, despite its questionable scientific foundation, should not, therefore, have a substantial negative environmental impact; the EPA recognizes that completed stages in a remediation plan do not necessarily constitute a remediated Bloomington.¹¹⁹

As such, the Seventh Circuit, with its decision in *Frey III*, did what it set out to do: provide a playbook by which future courts and parties can determine when consecutive stages of a CERCLA cleanup are sufficiently different to permit citizen suits challenging them.¹²⁰ Although the rationale behind the approach is not grounded in perfect science, the remediation in Bloomington will continue unchanged.¹²¹ The EPA and CBS will continue to diligently clean the sites according to the remediation plan while accounting for biogeochemical cycling, which will continue to make their job more difficult by ensuring the constant movement and seepage of PCBs, and consequently, the re-pollution of completed stages.¹²² The *Frey III* decision, even if it acknowledged and incorporated biogeochemical cycling, was never going to change that practical reality.¹²³

CONCLUSION

Columbia Broadcast System's disposal of electronics that were leaking carcinogenic pollutants at dumpsites near Bloomington, Indiana has caused a half-century's worth of environmental degradation and legal headaches. The company's and the EPA's multi-staged attempts at remediating the sites have been challenged in multiple citizen suits as insufficient under the Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA. In *Frey v. U.S. Environmental Protection Agency (Frey III)*—the third citizen suit brought to challenge CBS's remediation plans for the Bloomington sites—the U.S. Court of Appeals for the Seventh Circuit determined that, consistent with its holdings in the previous two citizen suits, Stages 2 and 3 of

¹¹⁷ See *Frey III*, 751 F.3d at 468; HARRISON, *supra* note 17, at 237; Mann, *supra* note 115.

¹¹⁸ See *Frey III*, 751 F.3d at 468; HARRISON, *supra* note 17, at 237; Mann, *supra* note 115. Despite this progress, fish in surrounding creeks will be too contaminated for human consumption for years to come. Mann, *supra* note 115.

¹¹⁹ See Mann, *supra* note 115.

¹²⁰ See *Frey III*, 751 F.3d at 468.

¹²¹ See *id.* at 466–68; *supra* notes 85–95 and accompanying text.

¹²² See *Frey III*, 751 F.3d at 468; *supra* notes 85–95 and accompanying text.

¹²³ See *Frey III*, 751 F.3d at 468; *supra* notes 85–95 and accompanying text.

site cleanups, which are currently on-going, are distinct from Stage 1, which has been completed. The court reasoned that the later stages were sufficiently unrelated to Stage 1, and thus that a citizen suit challenging Stage 1, but only Stage 1, was subject to judicial review.

The court's middle ground distinction of environmental compartments is a legally practical solution to the question of when different stages of a cleanup are sufficiently related to trigger section 113(h)(4) of CERCLA, which bars judicial review of ongoing environmental cleanups. The approach is, however, grounded in questionable scientific fact. The interconnectedness of the environment—recognized in the widely accepted concept of biogeochemical cycling—makes it difficult to delineate definitively remediated environmental compartments in a cleanup stage, because polluted compartments exchange contaminants through biogeochemical cycling. Although the court's decision in *Frey III* ignores this fact, the success of the EPA's remediation plans will not be impacted. PCBs will continue to cycle through the environmental compartments at the Bloomington sites, and despite the decision, the EPA and CBS will work hard to contain and remove them.

